TAXONOMIC NOTES ON THE ORDER EMBIOPTERA. XIX.

GENERA NOT PREVIOUSLY DISCUSSED.

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(Twenty-three Text-figures.)

[Read 27th November, 1940.]

Twenty-six genera have been dealt with already in this series of papers. The purpose of the present paper is to summarize our knowledge of the remaining ten genera in the Order, less fully in the case of the two North American genera, as these two genera are being considered in detail by Mr. E. S. Ross, of the University of California, rendering repetition of the data unnecessary.

Genus Embonycha Navás 1917.

Insecta, *Revue illustrée d'Entomologie*, Rennes, Nos. 73–84, p. 15. Genotype, *Embonycha interrupta* Navás, 1917, l.c., fig. 11.

Asiatic Embioptera, the males winged, with R_{4+5} forked, M simple, cubitus with one anterior branch. First segment of left cercus one-segmented, strongly incurved, terminally subacute.

Embonycha interrupta Navás 1917, l.c. Fig. 1.

♂ (after Navás, l.c.). Length 11 mm., of forewing 9·5 mm., of hindwing 8·3 mm. General colour dark brown, head almost black, labrum ferruginous, last abdominal segment pale; wings with dark-brown bands, and with hyaline inter-venal lines and transverse striae at cross-veins. Terminalia (Fig. 1, after Navás, l.c., fig. 11) with left cercus one-segmented, curved inward and upward, apical third incrassate, especially exteriorly, apex tapered; right cercus with two long cylindrical segments. Whether the left cercus is echinulate is not stated.

♀ unknown.

Locality.—Indo-China: Chapa, 11/6/16, Vitalis de Salvaza (holotype ♂, Navás Collection).

This appears to be a very interesting insect, but the data concerning it are too meagre to draw any very definite conclusion. Its nearest relative seems to be *Ptiloceremba* Friedrichs (East Indies), in which the second segment of the left cercus is present as a small subconical protuberance on the outer side. The venation agrees with *Ptiloceremba*, differing therefore from *Burmitembia* and *Notoligotoma*, which have R_{4+5} simple (some forms of *Notoligotoma* are wingless). These four genera, with the wingless *Metoligotoma*, appear to form one unit (family); the distribution is compact (Burma, Indo-China, East Indies, Australia and Tasmania; Miocene–Recent). The series seems to be characterized by reduction or loss of the second segment of the left cercus (♂), by fusion with the first segment, followed in some cases by the loss of R_5, or of the entire wings. This is the opposite to the sequence leading by way of *Mesembia* to *Anisembia* (infra), in which R_5 is lost, and, subsequently, the left cercus reduced.

It is likely that *Embonycha* will prove to have two hind metatarsal bladders, the normal number for *Burmitembia*, *Notoligotoma* and *Metoligotoma* (the character is not detailed for *Ptiloceremba*; infra).

The details given by Navás (l.c.) for the tenth tergite of *Embonycha interrupta* may well be doubted, and probably derive from a cursory examination of the dried, unprepared terminalia. The left lobe of the tenth tergite is said to be undivided (? from

the right; cf. fig. 1), and produced backward as a blunt tubercle. As no suture is shown in the figure between the base of either of the cerci and the tenth tergite, the omission of a suture between the hemitergites, in figure and in verbal description, may well be classed as an oversight.

The type (if still extant) requires re-examination. The family classification and name are discussed in the next part of this series.

Genus Ptiloceremba Friederichs 1923.

Capita Zoologica, Deel ii, Afl. 1, p. 24. Genotype, *Ptiloceremba roepkei* Friederichs, 1923, l.c., figs. 5–7.

Embioptera occurring in the East Indies, the males with the following characters: Winged, R_{4+5} forked, M and Cu_{1a} simple; antennal segments with very long perpendicular hairs; tenth abdominal tergite completely cleft, with a trapezoidal sclerite basally separating the hemitergites; right hemitergite with an internal dorsal hook curved forward; process of left hemitergite simple; first segment of left cercus clavate, echinulate, second reduced, subconical, set firmly on outer part of distal end of first. Right cercus with two subcylindrical segments.

Ptiloceremba roepkei Friederichs 1923, l.c. Figs. 2–3.

♂ (after Friederichs, l.c., and 1934, p. 405 et seq.). Length 14–16 mm. (examples from culture under less favourable conditions 10½–12 mm.); length of (? fore-)wing 12–13 mm. General colour very dark brown, paler ventrally; wings brown with hyaline inter-venal lines. Head with large prominent subreniform eyes; sides behind eyes narrowed. Antennae with up to 30 segments, with long perpendicular hairs. Wings (Fig. 2, after Friederichs, 1923, fig. 6) with R_1, main stem of cubitus, and anal, distinct and strong, other veins weak, terminally subobsolescent, especially R_5, M and Cu_{1a}. R_1 confluent with R_{2+3} distally. Some four cross-veins from R_1 to R_{2+3}, one from M to radial sector. Details of hind tarsi not stated; metatarsal bladders probably two, by analogy with the closely-related *Notoligotoma*.

Terminalia (Fig. 3, after Friederichs, 1923, fig. 7) with tenth abdominal tergite completely cleft; hemitergites separated basally by a trapezoidal plate. Right hemitergite (10R) transverse, inner margin ending posteriorly in a subobtuse process ($10RP_1$), anteriorly in a dorsal hook curving forward ($10RP_2$). Left hemitergite (10L) with inner margin produced backward to an elongate process (10LP), medially slightly expanded, terminally subacute. Right cercus with two subcylindrical segments (RC_1, RC_2); first segment of left cercus (LC_1) clavate, dilated inward in an echinulate lobe in the terminal third; second segment (LC_2) shorter, subconical, firmly set on first segment outside and distad to inner dilation. Left cercus-basipodite curved outward, subacute.

♀ (after Friederichs, l.c., 1923 and 1934). Length 12–19 mm. General colour paler than in the male, mottled.

The recognition of the forma *dimidiata* Friederichs (1934, p. 406), representing a female of slightly different colour, not corresponding exactly to any geographic range, serves no useful purpose. Such colour-differences are frequently due to method of preservation, and to degree of melanization after the final ecdysis.

Locality.—Java (Smeroe and Soember Soeko Tangkep, near Malang; Bangelan, Kawi; Soember Asin) and Sumatra (Limau Manis). Location of types not stated.

This interesting genus is very closely related to the Australian genus *Notoligotoma*, in which, however, R_5 has been lost. The terminalia agree almost exactly; whether $10RP_2$ is echinulate in *Ptiloceremba* as it is in *Notoligotoma* is not stated. *Notoligotoma* has not the peculiar antennae of *Ptiloceremba*. The number of hind metatarsal bladders will probably prove to be two. Several years ago I made a cursory examination of a female of *Pt. roepkei* (determined by Friederichs; on loan from the Zoological Museum, Buitenzorg, Java; now in the Leyden Museum), but did not at the time realize the importance of the tarsal bladders; the number is not included in my notes.

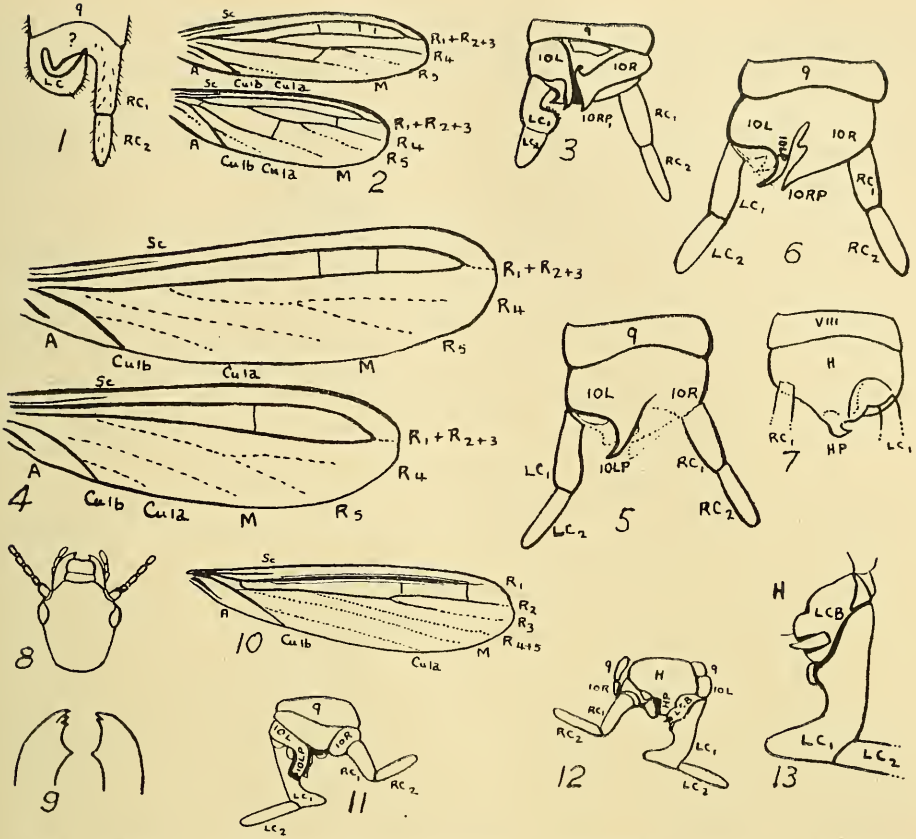

Fig. 1.—*Embonycha interrupta* Navás, holotype ♂. Terminalia from above. (After Navás, 1917, fig. 11; magnification not stated.)

Figs. 2-3.—*Ptilocerembia roepkei* Friederichs, ♂. 2. Right fore- and hindwing (diagrammatic). 3. Terminalia from above. (After Friederichs, 1923, figs. 6-7; magnifications not stated.)

Figs. 4-7.—*Diradius pusillus* Friederichs, holotype ♂. 4. Right fore- and hindwing. 5, 6. Terminalia from above, arrangement of component parts varying. 7. Terminalia from below. (After Friederichs, 1934, figs. 7*d*, 7*a-c* respectively; magnifications not stated.)

Figs. 8-13.—*Teratembia geniculata* Krauss, holotype ♂. 8. Head from above. 9. Mandibles from above. 10. Right forewing. 11. Terminalia from above. 12. Terminalia from below. 13. Base of left cercus from below. (After Krauss, 1911, Pl. i, figs. 3, 3A-B, 3D-F respectively; magnifications not stated.)

Genus Notoligotoma Davis 1936*a*.

Proc. Linn. Soc. N.S.W., lxi, p. 244. Genotype, *Oligotoma hardyi* Friederichs 1914, *Rec. W. Aust. Museum*, i, 3, p. 241.

The following species are recorded:

N. hardyi (Friederichs), 1914, l.c.; Davis, 1936*a*, l.c., p. 245, figs. 8, 15, 22, 29, 36; Davis, 1940, Proc. Linn. Soc. N.S.W., lxv, p. 158, fig. 4.

N. nitens Davis, 1936*a*, l.c., p. 246, figs. 9, 16, 23, 30, 37, 39–41.

These species have been described in conformity with the descriptions of the present series (Davis, l.c.), and the repetition of the data seems unnecessary. In the first descriptions (1936*a*, fig. 8, 9), the trapezoidal plate basally separating the hemitergites was omitted; this is present, as a weakly-sclerotized plate, in both species (cf. Davis, 1940, l.c.), apparently as in *Ptilocerembia*.

Genus Metoligotoma Davis 1936.

Proc. Linn. Soc. N.S.W., lxi, 248. Genotype, *Metoligotoma reducta* Davis, 1936*a*, l.c., p. 248.

The following species have been described in conformity with the descriptions of the present series, and are therefore merely listed:

M. reducta Davis, 1936*a*.—*M. reducta reducta* Davis, 1936*a*, Proc. Linn. Soc. N.S.W., lxi, p. 248.—*M. reducta* Davis, 1938, ibid., lxiii, p. 227, figs. 1–4.

M. ingens Davis 1936*a*.—*M. reducta ingens* Davis, 1936*a*, l.c., p. 250.—*M. ingens* Davis, 1938, l.c., p. 235, figs. 31–37.

M. illawarrae illawarrae Davis, 1938, l.c., p. 230, figs. 5–8.

M. illawarrae septentrionis Davis, 1938, l.c., p. 232, figs. 9–12.

M. illawarrae telocera Davis, 1938, l.c., p. 233, figs. 15–22.

M. collina collina Davis, 1938, l.c., p. 233, figs. 23–26.

M. collina exigua Davis, 1938, l.c., p. 235, figs. 27–30.

M. pentanesiana Davis, 1936*b*, ibid., lxi, p. 254, figs. 1–2, 4, 6; 1938, l.c., p. 237, figs. 38–41.

M. extorris Davis, 1936*b*, l.c., p. 256, figs. 3, 5, 7; 1938, l.c., p. 237, figs. 42–66.

M. intermedia Davis, 1938, l.c., p. 239, figs. 67–70.

M. anomala Davis, 1938, l.c., p. 241, figs. 71–74.

M. brevispina Davis, 1938, l.c., p. 241, figs. 75–79.

M. convergens Davis, 1938, l.c., p. 242, figs. 80–83.

M. bidens Davis, 1938, l.c., p. 243, figs. 84–87.

M. pugionifer Davis, 1938, l.c., p. 243, figs. 88–92.

M. minima Davis, 1938, l.c., p. 245, figs. 93-96.

M. begae Davis, 1938, l.c., p. 245, figs. 97–101.

M. tasmanica tasmanica Davis, 1938, l.c., p. 246, figs. 102–105.

M. tasmanica bassiana Davis, 1938, l.c., p. 248, figs. 106–108.

M. tasmanica biloba Davis, 1938, l.c., p. 249, figs. 112–115.

M. rileyi Davis, 1940, Proc. Linn. Soc. N.S.W., lxv, p. 155, figs. 1–3.

The genus extends along the east coast of Australia, from South Bruni Island, Tasmania, at least as far north as Townsville, Queensland. It is probably a direct descendant of *Burmitembia* Cockerell (Burmese Amber, ? Miocene), which differs in the presence of wings, and the lack of nodules on the left cercus, and possibly in the structure of the hemitergites (not known for *Burmitembia*). These two genera are also closely related to *Embonycha* Navás.

Genus Diradius Friederichs 1934.

Arch. f. Naturg., N.F., Bd. 3, Hft. 3, p. 419. Genotype, *Diradius pusillus* Friederichs, 1934, l.c., p. 419, figs. 7*a–d*.

Very small Neotropical Embioptera, the males with the following characters: Winged, R_{4+5} forked, M and Cu_{1a} simple; these veins are represented only by macrotrichia and bordering pigment-bands. Terminalia agreeing with *Oligembia* Davis (first segment of left cercus not echinulate; division of tenth abdominal tergite into hemitergites obsolete proximally) except in the process of the left hemitergite, which is simple, acutely tapered (complex, bifid, in *Oligembia*), and in the left cercus-basipodite, which seems to be weaker than in *Oligembia*.

Diradius pusillus Friederichs 1934, l.c. Figs. 4–7.

♂ (after Friederichs, l.c.). Length 4·5 mm.; length of forewing 3·6 mm., of hindwing approx. 2·5 mm. General colour mid-brown, antennae and palps brownish-yellow, wings brownish with broad hyaline inter-venal lines. Eyes moderately large, sides of head behind eyes rounded, converging posteriorly. Antennae incomplete; mandibles slender. Details of hind tarsus not given; possibly the same as in *Oligembia*, with no metatarsal bladder. Wings (Fig. 4, after Friederichs, l.c., fig. 7*d*) as in generic description, one or two cross-veins from R_1 to R_{2+3}. Terminalia (Figs. 5–7, after Friederichs, l.c., figs. 7*a–c*) with tenth abdominal tergite divided to left and right hemitergites (10L, 10R), division obsolescent proximally. Process of 10L (10LP) acutely tapered, curved to the left. Posterior process of 10R ($10RP_1$) subobtuse; inner margin of 10R notched. Left cercus with two subcylindrical segments (LC_1, LC_2), the first slightly dilated distally, but without nodules. Right cercus with two subcylindrical segments (RC_1, RC_2).

Hypandrium (H) with a terminal hook (HP), directed to the left. Structure of basipodites not stated, the left without the complex processes found in *Oligembia*, to judge from Figure 7.

♀ unknown.

Locality.—Isabelle, Humboldt region, State of Santa Cattarina, Brazil, coll. W. Ehrhardt. Holotype ♂ in Mus. Hamburg.

Genus Teratembia Krauss 1911.

Zoologica, Hft. 60, Bd. 23, p. 33. Genotype, *Teratembia geniculata* Krauss 1911, l.c., p. 33, Pl. i, figs. 3, 3A–G.

Very small Neotropical Embioptera, the males with the following characters: Winged, R_{2+3} forked, R_{4+5}, M, and Cu_{1a} simple; R_3, R_{4+5}, M, and Cu_{1a} subobsolescent. Tenth tergite with complex divisions and processes, homologies uncertain. First segment of left cercus not echinulate, incurved terminally to an obtusely-tapered lobe, and with a small medial internal protuberance; second segment of left cercus, and both segments of right cercus, subcylindrical. Structures at base of left cercus complex.

Teratembia geniculata Krauss 1911, l.c. Figs. 8–13.

♂ (after Krauss, l.c.). Length 5 mm., of forewing 4 mm. General colour brownish-yellow, head and pronotum brown, wings weakly banded with brown. Head (Fig. 8, after Krauss, l.c., Pl. i, fig. 3) with sides converging strongly behind eyes; antennae defective. Mandibles (Fig. 9, after Krauss, l.c., fig. 3A) each with an internal tooth half-way from base to apex, the left with three, the right with two terminal incurved teeth. Wings (Fig. 10, after Krauss, l.c., fig. 3B) as in generic description, R_1 not confluent with R_2. Terminalia (Figs. 11–13, after Krauss, l.c., figs. 3D–F) complex; tenth tergite with a medial plate, transverse, convex behind; on the right is a small sclerite, rounded, apparently without any process, placed at the base of the right cercus on the dorsal aspect; on the left, and posterior to the median plate, is another dorsal sclerite, with a process directed inward, curving backward and outward, weakly bifid terminally. This sclerite may be regarded as the left hemitergite (10L) and process (10LP), and the small sclerite, dorsally contiguous with the base of the right cercus, as the right hemitergite (10R); Krauss (l.c.) considers that they are the cercus-basipodites, and that the medial transverse plate is the undivided tenth tergite. The dorsal position of the lateral sclerites precludes this interpretation, as cercus-basipodites are ventral structures. Enderlein (1912, p. 99) considers the left-hand sclerite as a hemitergite, but labels the main transverse plate as the right hemitergite (l.c., fig. 63, rtg_{10}), and does not name the right-hand sclerite. The homology of the parts is by no means easy to establish from Krauss's description; he also refers to the right cercus-basipodite at one stage when the context clearly shows that he means the left cercus-basipodite (in his sense; 10L and 10LP of this paper). This error has been overlooked by Enderlein (l.c.) in his transcription of the data.

Below 10LP is a small process, terminally expanded, with jagged edges, and produced to the left in a blunt hook (figured in *ventral* view, Krauss, l.c., Pl. i, fig. 3G). The homology is uncertain; it may represent the more antero-dorsal part of a complex cercus-basipodite, or the remains of the left half of the larval tenth sternite. This region is also complex in *Oligembia* Davis (1939), which is probably related to *Teratembia*.

First segment of left cercus (LC_1) without nodules; LC_1 produced inward distally as an obtusely-tapered beak; inner margin, basad to this beak, with two obtuse medial protuberances, one above the other; second segment (LC_2) and segments of right cercus (RC_1, RC_2) subcylindrical. A pad-like ventral structure at the base of the left cercus probably represents the true left cercus-basipodite, or part of it; it carries a small acute peg directed inward. Hypandrium (H) produced backward in a tongue-like process (H.P.).

♀ unknown.

Locality.—Tucuman, Argentina, coll. Vezenyi, 15/1/1906 (holotype ♂, Mus. Buda-Pesth).

On the present data, there seems sound justification for Krauss's family (Teratembiidae), though based on a single genus, species, and specimen. However, further research may show that the venation of the type is teratological. This is the only case known in the whole Order in which R_{2+3} is forked. A possible explanation is that R_1 has become detached from the stem R_{1+5}, and secondarily attached to R_{2+3}. This would indicate a close affinity of *Teratembia* to *Oligembia* and *Diradius*. Breaking of the connection of a branch of R_{1+5} from the stem has been noted as an anomaly (confined to one wing) in *Oligembia* (Davis, 1939). *Teratembia* agrees with *Oligembia* and *Diradius* in the small size and subobsolescent venation, as well as in the geographical region inhabited. It agrees with both in the lack of nodules from the first segment of the left cercus, and with *Oligembia* in the complexity of the structures (whatever their homologies) at the base of the left cercus; this last character is not known for *Diradius*. *Teratembia* agrees with *Oligembia*, but differs from *Diradius*, in the complexity of the process of the left hemitergite (on the present interpretation). It appears to differ from both these genera in the complete division from the median plate of the two lateral sclerites here interpreted as hemitergites; in the apparent lack of any process from the right hemitergite in this sense; and in the form of the first segment of the left cercus (subcylindrical to weakly clavate in *Oligembia* and *Diradius*).

Krauss (l.c.) states that the hind legs of the unique type of *Teratembia geniculata* are missing; comparison of the tarsi with *Oligembia* is therefore impossible.

Genus Protembia Tillyard 1937.

Amer. J. Sci., xxxiii, p. 241. Genotype, *Protembia permiana* Tillyard 1937, l.c., figs. 1–2.

Permian Embioptera (Kansas beds), the females probably winged. Sc reaching to one-half the length of the wing, with a humeral veinlet. R three-branched, M two-branched. Cerci with more than two segments.

Protembia permiana Tillyard 1937, l.c. Fig. 14.

By the courtesy of the late Dr. R. J. Tillyard, I was enabled to examine the type in Sydney before it was returned to the Yale University Collection. The venation is substantially as in Figure 14. Dr. Tillyard believed that the type represented a female, a conical structure at the end of the abdomen being interpreted as the ovipositor. On the type specimen, this structure might as well represent the hypandrium, so that material proof that the females of *Protembia* were winged is, in my opinion, lacking; it is quite probable, however, that the loss of wings in the female had not occurred at that early date.

The head of the type appears to be broader than long, and the cerci composed of an unknown (probably large) number of annular segments, both characters in contrast to Tertiary and Recent Embioptera. The nature of the fore tarsi is not clear; it cannot be stated whether they were modified for spinning.

Locality.—Lower Permian of Kansas, U.S.A. I understand that Dr. F. M. Carpenter, of Harvard University, has obtained some more complete specimens of this genus, details of which will be published shortly.

Genus Tillyardembia Zalessky 1937.

Nature, 140, p. 847. Genotype, *Tillyardembia biarmica* Zalessky 1937, l.c.

This genus, from the Permian of Russia, is allowed as distinct only on the factors of locality and horizon; preservation of the specimens is not good enough to show any structural points.

Tillyardembia biarmica Zalessky 1937, l.c.

On the published data, little can be said of the structure of this species. It appears to be closely related to *Protembia permiana*, but is somewhat smaller. Zalessky also believed his specimen to be a winged female, but the means of determining the sex seem less apparent even than in *Protembia permiana*. The location of the type is not stated.

Genus Anisembia Krauss 1911.

Zoologica, Hft. 60, Bd. 23, p. 75. Genotype, *Embia texana* Melander, 1902, *Biol. Bull.*, iii, 1–2, p. 19.

North American (Sonoran) and Antillean Embioptera, the males wingless, or winged, with R_{1+5}, M, and Cu_{1a} simple. First segment of hind tarsi probably with only one ventral bladder throughout the genus. Male terminalia with left cercus one-segmented, due to the fusion of the two larval segments; second segment sometimes present as an unsutured bulge on the outer part of the end of the first segment, sometimes completely resorbed. Left cercus echinulate, sometimes only weakly so. Tenth abdominal tergite completely cleft; right hemitergite without any prominent process on the inner margin; process of left hemitergite simple to weakly bifid.

The taxonomy of this genus is being treated by Mr. E. S. Ross, of the University of California. The species described at the time of writing are:

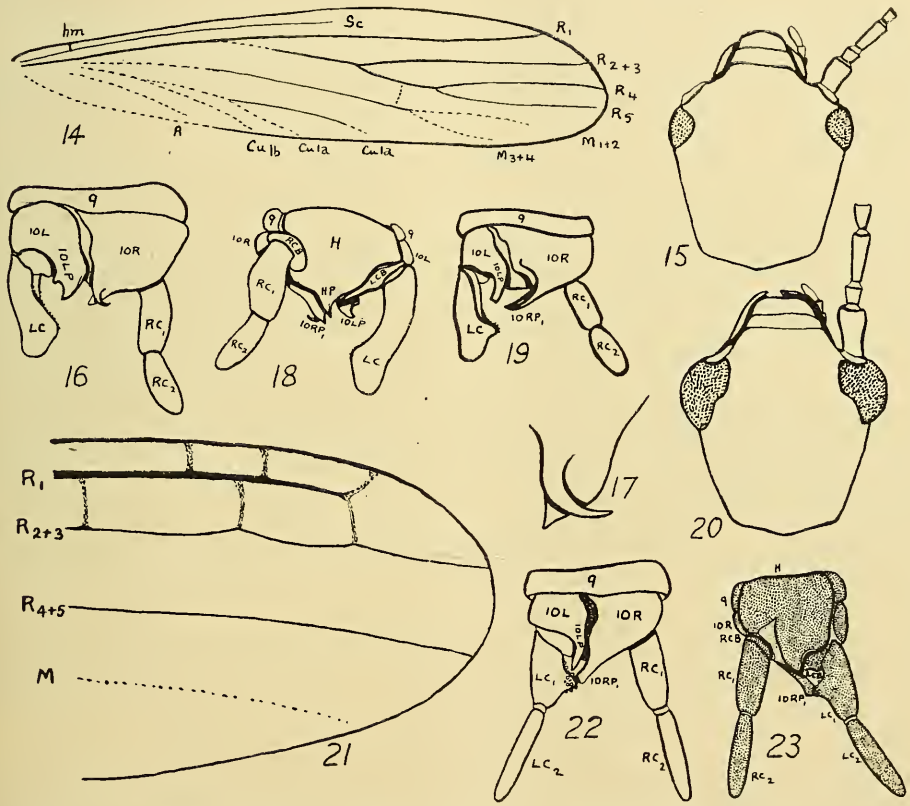

Fig. 14.—*Protembia permiana* Tillyard, type (? ♀). Right hindwing, × 9 approx. (From an unpublished figure by Tillyard, compared with the type by the writer.)

Figs. 15-18.—*Anisembia wheeleri* (Mel.), holotype ♂. 15. Head from above, × 30. 16. Terminalia from above, × 30. 17. Posterior part of right hemitergite from above, × 100. 18. Terminalia from below, × 30.

Fig. 19.—*Anisembia sini* Chamberlin, holotype ♂. Terminalia from above, × 17.

Figs. 20-23.—*Mesembia hospes* (Myers), paratype ♂. 20. Head from above, × 22. 21. Tip of right forewing, × 22. 22. Terminalia from above, × 22. 23. Terminalia from below, × 22, stippling in proportion to degree of sclerotization.

(Figs. 15-18, 20-23, based on camera lucida outlines; 19 prepared with constant use of an ocular micrometer. Conventional lettering for venation. Setae omitted. 9, Ninth abdominal tergite; 10L, 10R, left and right hemitergites of tenth abdominal segment; 10LP, process of 10L; $10RP_1$, posterior process of 10R; LC_1, LC_2, RC_1, RC_2, first and second segments of left and right cerci; LCB, RCB, left and right cercus-basipodites; H, hypandrium; HP, process of H.)

Anisembia texana (Melander 1902).—*Embia texana* Melander 1902, l.c.—*Anisembia texana* (Mel.) Krauss 1911, l.c.—Austin, Texas (males winged or wingless). The type (♀) is in the Museum of Comparative Zoology, Harvard University. Melander (1903) has also described the male. The species is known also from Victoria, Texas.

Anisembia wheeleri (Melander 1902).—*Olyntha wheeleri* Melander 1902, l.c., p. 17.—*Anisembia wheeleri* (Mel.) Krauss 1911, l.c., p. 77. The unique type (♂) is wingless; collected at Cuernavaca, Mexico, it is now in the Museum of Comparative Zoology. The head and terminalia (drawn from the unprepared, alcoholic type) are shown in Figures 15–18.

Anisembia heymonsi (Enderlein 1912).—*Oligotoma heymonsi* Enderlein 1912, *Coll. zool. de Selys-Longchamps*, fasc. 3, p. 114, figs. 74–76.—*Anisembia heymonsi* (End.) Chamberlin 1923, *Proc. Calif. Acad. Sci.*, xii, 16.—Locality: Sierra Mixteca, Mexico; unique type ♂ in Mus. Berlin (winged).

Anisembia sini Chamberlin 1923, l.c.—The type ♂ (California Academy of Sciences, San Francisco) is from Lower California, Mexico (fig. 19). The only known males are wingless.

Note.—In addition to the above, three new species are being described by Mr. E. S. Ross, from Cuba, Mexico, and Arizona respectively, the last-named being at least subgenerically distinct.

Genus Mesembia Ross 1940.

(Printed paper not yet received).—Genotype *Oligotoma hospes* Myers, 1928, *Bull. Brooklyn Ent. Soc.*, xxiii, 2, p. 89.

Antillean Embioptera, the males winged, R_{4+5}, M and Cu_{1a} simple, hind metatarsus with only one ventral bladder. Male terminalia with tenth abdominal tergite completely cleft, right hemitergite without inner processes; first segment of left cercus clavate, echinulate, second segment distinct, subcylindrical, at least three times as long as thick.

I have not yet seen Mr. Ross's paper in print; I have read his manuscript, and have his assurance that his paper will appear well in advance of the present paper.

Mesembia hospes (Myers 1928).—*Oligotoma hospes* Myers 1928, l.c. The type series, from Soledad, Santa Clara, Cuba (Museum of Comparative Zoology), includes two males (holotype and paratype). The paratype is here figured (Figs. 20–23); the holotype has the terminalia badly distorted, due to the method of preparation, so that the figure given by Myers (l.c.) is misleading.

In addition to this species, Mr. Ross is describing a new species from Haiti, West Indies.

List of References.

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————, 1936*b*.—Studies in Australian Embioptera. ii. Ibid., lxi, 254-258.

————, 1938.—Studies in Australian Embioptera. iii. Ibid., lxiii, 226-272.

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